

Application No. 10/725,724
Response dated: November 7, 2005
Reply to Office Action of August 5, 2005

RD28230-3

REMARKS/ARGUMENTS

In the Office Action dated August 5, 2005, the Examiner rejected claims 1-22. Claims 1-22 remain pending in the application. Reconsideration and allowance of all pending claims are requested.

Claim Rejections under 35 USC 102

The Examiner rejected claims 1, 2, 6, 9, 12, 13, 15, 16, 18-20, and 22 under 35 U.S.C. 102(e) as being anticipated by Hung, U.S. Patent 6208077 (the "'077 reference"). The Applicants respectfully traverse this rejection.

The Examiner states that the '077 reference discloses an organic electroluminescent light emitting device and a method for its manufacture, the device comprising: a first electrode; a second electrode; at least one organic light emitting layer; and a ceramic output coupler. Without citing any particular text, and for a reason or reasons not entirely understood by the Applicants, the Examiner further offered that "fluorocarbons are porous insulating materials" and that "ceramics as a material contain a plurality of voids distributed therein". The Applicants acknowledge that while the '077 reference is relevant in that it provides important background information with which the present invention may be better understood, the '077 reference neither discloses nor suggests the Applicants' claimed invention. Moreover, the Applicants note that "fluorocarbons" and "ceramics materials" are not inherently porous materials and offer that there are many instances in which organic polymers, such as fluorocarbons, and ceramic materials are free of voids.

The '077 reference (Hung) is directed to organic electroluminescent (EL) devices. As stated in column 4, lines 1-2 of Hung, the substrate is either light transmissive or opaque. Continuing into column 4, Hung provides, at lines 2-10, that where the EL emission is viewed through the top electrode, the transmissive characteristic of the support is immaterial, and therefore any appropriate substrate such as opaque semiconductor and ceramic wafers can be used. Hung further states that in those device configurations, a light transparent top electrode is necessary.

Application No. 10/725,724
Response dated: November 7, 2005
Reply to Office Action of August 5, 2005

RD28230-3

The present invention is directed to an organic electroluminescent light emitting device, comprising a first electrode, a second electrode, at least one organic light emitting layer and a ceramic output coupler, which comprises a ceramic material and a plurality of voids distributed therein. As stated in the specification at page 4, lines 12-28, the Applicants have realized that, by using a ceramic output coupler, the OLED quantum efficiency may be improved compared to using glass or plastic substrate with a textured surface or lens array. A ceramic output coupler of the instant invention accomplishes this goal by providing a ceramic material having a plurality of voids distributed therein. According to the present invention, the transmissive characteristic of the support is not immaterial; hence the requirement for the ceramic output coupler to be comprised of a ceramic material having a plurality of voids.

Hung does not teach a ceramic output coupler comprised of a ceramic material and a plurality of voids distributed therein. Accordingly, Hung does not teach each and every element of current Claim 1. The Office Action argues that voids are natural characteristics of all ceramic materials. Applicants respectfully traverse the Examiner's statement. One of ordinary skill in the art readily understands that various ceramics may be made without any voids. One such ceramic material having no voids is made by resolidification of a ceramic melt.

Because the '077 reference (Hung) neither discloses nor suggests a ceramic output coupler comprised of a ceramic material and a plurality of voids distributed therein, the '077 reference cannot be read to disclose each and every element of originally filed claim 1 or originally filed claim 20. Therefore, reference '077 cannot anticipate either of claim 1 or claim 20. Accordingly, the Applicants respectfully submit that independent claims 1 and 20 and all claims depending therefrom (claims 2, 6, 9, 12, 13, 15, 16, 18-19, and 22) are allowable. The Examiner is thus respectfully requested to withdraw the rejection of claims 1, 2, 6, 9, 12, 13, 15, 16, 18-20, and 22 under 35 U.S.C. 102(e) as being anticipated by Hung.

Application No. 10/725,724
Response dated: November 7, 2005
Reply to Office Action of August 5, 2005

RD28230-3

Claim Rejections under 35 USC 103

The Examiner rejected claims 3-5, 7, 8, 14, and 17 under 35 U.S.C. 103(a) as being unpatentable over the '077 reference (Hung). The Examiner noted that reference '007 is silent in regards to the characteristics of ceramic substrate, and states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to "match the proper indices of refraction to fit the other layers to have a device that has the brightest, clearest pictures".

The Examiner is correct in stating that reference '007 is silent with regard to the characteristics of the ceramic substrate. However, contrary to the statement in the Office Action, one of ordinary skill in the art would not have been motivated to modify the layers of Hung. Hung specifically provides that a ceramic substrate is only used when the transmissive characteristics of the substrate are immaterial. Hung teaches that the substrate may be a ceramic wafer when the transmissive characteristic of the substrate material is immaterial. Hung does not teach, or even suggest the utilization of glass or polymer substrate and a ceramic output coupler. If the characteristics of the substrate were immaterial, one of ordinary skill in the art would not attempt to modify the layers for matching proper indexes of refraction to fit other layers. Accordingly, at the time the invention was made, it would not have been obvious to one of ordinary skill in the art to modify any layers of Hung, particularly the ceramic substrate.

In light of the foregoing arguments, the Applicants respectfully request that the rejection of claims 3-5, 7, 8, 14, and 17 under 35 U.S.C. 103(a) as being unpatentable over the '077 reference (Hung) be withdrawn.

The Examiner further rejected claims 10 and 11 under 35 U.S.C. 103(a) as being unpatentable over the '077 reference in view of Schnitzer (Appl. Phys. Lett 63(16)). The Examiner states that the '077 reference discloses the device of claim 9 but is silent with regard to the limitations of claims 10 and 11 which the Examiner urges are provided by Schnitzer. The Applicants have pointed out that the '077 reference does not, in fact, disclose the device of claim 9, since the '077 reference cannot be read to disclose or suggest a ceramic output coupler comprised of a ceramic material comprising a plurality

Application No. 10/725,724
Response dated: November 7, 2005
Reply to Office Action of August 5, 2005

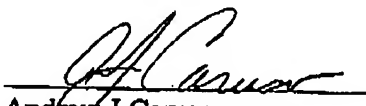
RD28230-3

of voids distributed therein. The Applicants urge that because claim 9 recites patentable subject matter any and all claims dependent thereupon (e.g. claims 10 and 11) likewise recite patentable subject matter. The Applicants therefore respectfully request that the Examiner withdraw the rejection of claims 10 and 11 under 35 U.S.C. 103(a) as being unpatentable over the '077 reference (Hung) in view of Schnitzer.

Lastly, claim 21 was rejected as being unpatentable over the '077 reference (Hung) in view of Lai et al. (Improved external efficiency of light emitting diode using organic thin film). It is the Applicants' position that claim 20 recites patentable subject matter and that any and all claims which depend upon claim 20 will necessarily recite patentable subject matter. The Applicants therefore respectfully request that the Examiner withdraw the rejection of claim 21 under 35 U.S.C. 103(a) as being unpatentable over the '077 reference (Hung) in view of Lai.

In view of the foregoing arguments the Applicants respectfully request reconsideration and prompt allowance of claims 1-22. If the Examiner believes that a telephonic interview will help speed this application towards issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,


Andrew J Caruso
Reg. No. 48, 520

General Electric Company
Building K1, Room 3A71
Schenectady, New York 12301
November 7, 2005
Telephone: (518) 387-7354